IN THE CLAIMS

Please cancel claims 1-19 without prejudice.

Please add claims 20-42 as follows:

~~Patent Claims~~WHAT IS CLAIMED IS:

1.-19. (Cancelled)

20. (New) A circuit arrangement comprising:

a filter bank with a plurality of filter stages and a filter-bank input to which an input signal can be supplied;

a plurality of resonator circuits for generation of in each case one output signal element from the input signal, with each resonator circuit in each case being associated with one filter stage from the plurality of filter stages, and being coupled to one output of the respective filter stage;

each resonator circuit comprising:

a capacitance;

an inductance;

a resonator output at which the respective output signal element can be produced; and

at least one resonator control circuit for open-loop or closed-loop control of the Q-factor of at least one resonator circuit, with the at least one resonator control circuit being designed in such a manner that it provides open-loop or closed-loop control for the Q-factor of the resonator circuit as a function of the time profile of the signal amplitude of the input signal and/or of the output signal element from the resonator circuit.

21. (New) The circuit arrangement as claimed in claim 20, comprising:

each resonator circuit having a plurality of resonator circuit elements which are coupled to one another in series; and

at least one of the resonator circuit elements being coupled to one output of the resonator circuit.

22. (New) The circuit arrangement as claimed in claim 20, comprising wherein the filter bank is in the form of a linear wave digital filter.

23. (New) The circuit arrangement as claimed in claim 20, comprising wherein at least one of the resonator circuits has a resistance which can be controlled by means of the resonator control circuit.

24. (New) The circuit arrangement as claimed in claim 20, comprising a plurality of high-pass filters, with each filter stage having at least one associated high-pass filter, and with one high-pass filter in each case being coupled to the output of a respective resonator circuit.

25. (New) The circuit arrangement as claimed in claim 24, comprising wherein at least some of the high-pass filters are in the form of first-order high-pass filters.

26. (New) The circuit arrangement as claimed in claim 25, comprising wherein the cut-off frequency of at least some of the first-order high-pass filters is chosen in such a manner that it corresponds to the frequency of the maximum sensitivity of a basilar membrane oscillation of an inner ear of a mammal.

27. (New) The circuit arrangement as claimed in claim 24, comprising a plurality of rectifier circuits, with one rectifier circuit in each case being associated with one of the filter stages and one high-pass filter, and being coupled to one output of a respective high-pass filter.

28. (New) The circuit arrangement as claimed in claim 27, comprising a plurality of low-pass filters, with one low-pass filter in each case being associated with one rectifier circuit, and being coupled to one output of a respective rectifier circuit.

29. (New) The circuit arrangement as claimed in claim 28, comprising a plurality of activation circuits, with one activation circuit in each case being associated with one of the

filter stages, and with each activation circuit being designed to amplify any rate of change of a signal which is supplied to the activation circuit, and for attenuation of components of the signal which is supplied to the activation circuit and are essentially constant over time.

30. (New) The circuit arrangement as claimed in claim 29, comprising wherein each activation circuit has a vesicle pool circuit with a large number of vesicle circuits.

31. (New) The circuit arrangement as claimed in claim 20, comprising wherein the resonator control circuit is designed in such a manner that it controls the Q-factor of the at least one resonator circuit on the basis of a Boltzmann function and/or its derivative, with the Boltzmann function including the amplitude of the respective output signal element as a parameter.

32. (New) The circuit arrangement as claimed in claim 20, comprising wherein the resonator control circuit is designed in such a manner that it adjusts the Q-factor of the at least one resonator circuit as a function of the amplitude of the respective output signal element, based on a sensitivity characteristic which has been determined for a human ear.

33. (New) The circuit arrangement as claimed in claim 20, comprising wherein the resonator control circuit is designed in such a manner that it adjusts the Q-factor of the at least one resonator circuit to become lower the higher the amplitude of the respective output signal element is.

34. (New) The circuit arrangement as claimed in claim 33, comprising wherein the resonator control circuit is designed in such a manner that it adjusts the Q-factor of the at least one resonator circuit as a non-linear function of the amplitude of the respective output signal element.

35. (New) The circuit arrangement as claimed in claim 20, comprising wherein the resonator control circuit is designed in such a manner that it adjusts the Q-factor of the at

least one resonator circuit in such a manner that the amplitude of the respective output signal element is within a predetermined interval.

36. The circuit arrangement as claimed in claim 20, comprising an acoustic signal designed for processing as the input signal to the filter bank.

37. (New) A signal-processing apparatus comprising:

a circuit arrangement comprising a filter bank with a plurality of filter stages and a filter-bank input to which an input signal can be supplied;

a plurality of resonator circuits for generation of in each case one output signal element from the input signal, with each resonator circuit in each case being associated with one filter stage from the plurality of filter stages, and being coupled to one output of the respective filter stage;

each resonator circuit comprising:

a capacitance;

an inductance;

a resonator output at which the respective output signal element can be produced;

at least one resonator control circuit for open-loop or closed-loop control of the Q-factor of at least one resonator circuit, with the at least one resonator control circuit being designed in such a manner that it provides open-loop or closed-loop control for the Q-factor of the resonator circuit as a function of the time profile of the signal amplitude of the input signal and/or of the output signal element from the resonator circuit; and

a further-processing unit for further-processing of the signal produced by the circuit arrangement.

38. (New) The signal-processing apparatus as claimed in claim 37, comprising wherein the further-processing unit is a speech-recognition device or a hearing aid.

39. (New) A circuit arrangement comprising:

a filter bank with a plurality of filter stages and a filter-bank input to which an input signal can be supplied;

means for providing a plurality of resonator circuits for generation of in each case one output signal element from the input signal, with each resonator circuit in each case being associated with one filter stage from the plurality of filter stages, and being coupled to one output of the respective filter stage;

each resonator circuit means comprising:

a capacitance;

an inductance;

a resonator output at which the respective output signal element can be produced; and

at least one resonator control circuit for open-loop or closed-loop control of the Q-factor of at least one resonator circuit, with the at least one resonator control circuit being designed in such a manner that it provides open-loop or closed-loop control for the Q-factor of the resonator circuit as a function of the time profile of the signal amplitude of the input signal and/or of the output signal element from the resonator circuit.

40. (New) A circuit arrangement comprising:

a filter bank with a plurality of filter stages;

a plurality of resonator circuits, with each resonator circuit in each case being associated with one filter stage from the plurality of filter stages, and being coupled to one output of the respective filter stage;

each resonator circuitcomprising:

a capacitance;

an inductance; and

at least one resonator control circuit for open-loop or closed-loop control of the Q-factor of at least one resonator circuit, with the at least one resonator control circuit being designed in such a manner that it provides open-loop or closed-loop control for the Q-factor of the resonator circuit as a function of the time profile of the signal amplitude of the input signal and/or of the output signal element from the resonator circuit.

41. (New) The circuit arrangement as claimed in claim 40, comprising:

each resonator circuit having a plurality of resonator circuit elements which are coupled to one another in series; and

at least one of the resonator circuit elements being coupled to one output of the resonator circuit.

42. (New) The circuit arrangement as claimed in claim 40, comprising wherein the filter bank is in the form of a linear wave digital filter.